

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. **Claims 1,10**, rejected under 35 U.S.C. 102(b) as being anticipated by Zhang (5881130).

As per **claims 1,10**, Zhang discloses a load coil detecting system that transmits frequencies (periodic signals) and receives the reflected signals (analog signals), which are then analyzed to determine the frequency response of the channel (of the reception signal). The frequency response will inherently comprise a set number of points and a frequency range as defined by the implemented system. The response is broken up into real and imaginary parts (Col 5 lines 1-60). The sets of points may be thought of as vectors since they are digital values. The calculations involve correlations between the input and received (response) vectors. The correlations are indicative of a difference (difference vector) that is used in determining impedance over frequency which is used to determine the presence of load coils (inherently requires a criterion).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2-7,9-16** rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (5881130), as applied to claims 1.10,

As per **claims 2,11**, Zhang discloses a correlation based algorithm based on reflected signals in the frequency domain, including using a cross correlation (Col 5 lines 1-60) of two signals, but does not disclose the specific steps of a first and second partial vectors used to create a difference vector based on one of the first or second partial vectors and a multiplied matrix of values of the first and second partial vectors.

The examiner contends that performing a correlation function is a well known function with many possible and known ways to implement, including a subtraction function (the stream of signals would make (partial) vectors or 'differential vectors'). The examiner further contends that it would have been obvious that coefficients could be multiplied to one or both of the partial vector terms. Zhang only refers to this term as a function $P_{yx}(j\omega)$ and examiner there are many known ways to cross correlate two signals including subtracting coefficient-multiplied terms (partial vectors). The examiner notes

<http://www.physics.ucsb.edu/~cgwinn/pulsar/spect.pdf> as one type of correlation algorithm that uses the aforementioned steps.

As per **claims 3**, the various data streams used in the chosen algorithm inherently require an addressed location in order to function. The examiner contends it would have been obvious to arbitrarily assign the values to various indexed registers (such as an 'even numbered' or 'odd numbered' index).

As per **claims 4,12**, the algorithm will comprise the maximum and minimum points, which would be differenced (along with the other points).

As per **claims 5,6,13,14** (Col 5 eq. 6).

As per **claim 7,15**, Col 7 lines 1-10, the sign comparison is analogous to the zero component comparison.

As per **claim 9,16**, the range is about 1kHz to 5kHz (Col 7 lines 20-30).

Allowable Subject Matter

Claim 8 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2614

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

June 17, 2008